

1. (currently amended) An ultrasonic diagnostic imaging system probe comprising:

an ultrasonic transducer array;

an integrated circuit coupled to the ultrasonic transducer array which acts to process or control transducer array signals transmitted and received by the transducer array;

a fuel cell coupled to the integrated circuit for energizing the integrated circuit; and

a source of replaceable fuel coupled to the fuel cell.

2. (canceled)

3. (previously presented) The ultrasonic diagnostic imaging system probe of Claim 1, wherein the integrated circuit further comprises a beamformer integrated circuit.

4. (previously presented) The ultrasonic diagnostic imaging system probe of Claim 1, further comprising a power converter, coupled to the fuel cell and the transducer array, which produces a stepped up voltage level in response to the power level produced by the fuel cell,

wherein the fuel cell further acts to energize the transducer array.

5. (previously presented) The ultrasonic diagnostic imaging system probe of Claim 1, further comprising a capacitor, coupled to the output of the fuel cell, which acts to store energy for peak load conditions.

6. (previously presented) The ultrasonic diagnostic imaging system probe of Claim 1, wherein the source of fuel comprises a replaceable fuel cartridge or ampule.

7. (previously presented) The ultrasonic diagnostic imaging system probe of Claim 6, wherein the fuel cartridge or ampule contains a methanol- or alcohol-based fuel.

8. (previously presented) The ultrasonic diagnostic imaging system probe of Claim 1, wherein the fuel cell further comprises an anode, a cathode, and an ion exchange membrane located between the anode and the cathode.

9. (previously presented) The ultrasonic diagnostic imaging system probe of Claim 8, wherein the fuel cell further comprises a catalyst metal which acts to promote the separation of hydrogen ions in the fuel cell.

10. (currently amended) A handheld ultrasonic diagnostic imaging system comprising:

an ultrasonic transducer array which transmits and receives ultrasound signals;

an integrated circuit coupled to the ultrasonic transducer array which acts to beamform signals produced by or for the transducer array, and to process beamformed signals for display;

a display panel coupled to the integrated circuit;

a fuel cell coupled to the integrated circuit and the display panel for energizing the integrated circuit and the display panel; and

a source of replaceable fuel coupled to the fuel cell.

11. (previously presented) The handheld ultrasonic diagnostic imaging system of Claim 10, further comprising a control panel for operating the handheld ultrasonic diagnostic imaging system; and

a case which houses the integrated circuit and the control panel.

12. (previously presented) The handheld ultrasonic diagnostic imaging system of Claim 11, wherein the case further houses the display panel, the fuel cell, and the source of fuel.

13. (previously presented) The handheld ultrasonic diagnostic imaging system of Claim 10, further comprising a power converter, coupled to the fuel cell and the transducer array, which produces a stepped up power level in response to the power level produced by the fuel cell,

wherein the fuel cell further acts to energize the transducer array.

14. (previously presented) The handheld ultrasonic diagnostic imaging system of Claim 10, further comprising a capacitor, coupled to the output of the fuel cell, which acts to store energy for peak load conditions.

15. (previously presented) The handheld ultrasonic diagnostic imaging system of Claim 10, wherein the source of fuel comprises a replaceable fuel cartridge or ampule.

16. (previously presented) The handheld ultrasonic diagnostic imaging system of Claim 15, wherein the fuel cartridge or ampule contains a methanol- or alcohol-based fuel.

17. (previously presented) The handheld ultrasonic diagnostic imaging system of Claim 10, wherein the fuel cell further comprises an anode, a cathode, and an ion exchange membrane located between the anode and the cathode.

18. (previously presented) The handheld ultrasonic diagnostic imaging system of Claim 17, wherein the fuel cell further comprises a catalyst metal which acts to promote the separation of hydrogen ions in the fuel cell.

19. (previously presented) The handheld ultrasonic diagnostic imaging system of Claim 10, wherein the display panel is further responsive to the source of fuel for the display of the amount of fuel remaining in the fuel source.

20. (currently amended) An ultrasonic diagnostic imaging system comprising:

an ultrasonic transducer array probe which transmits and receives ultrasound signals;

an ultrasound signal path coupled to the transducer array probe;

an image display coupled to the ultrasound signal path;

a control panel coupled to the ultrasound signal path;

a source of a.c. power coupled to energize the ultrasound signal path;

a fuel cell coupled to energize the ultrasound signal path; and

a source of replaceable fuel coupled to the fuel cell.

21. (previously presented) The ultrasonic diagnostic imaging system of Claim 19, wherein the ultrasound signal path is located in the system chassis of a tabletop ultrasound system.

22. (previously presented) The ultrasonic diagnostic imaging system of Claim 19, wherein the ultrasound signal path, the image display, the control panel, the fuel cell and the source of fuel are mounted on a wheeled cart.

23. (previously presented) The ultrasonic diagnostic imaging system of Claim 19, wherein the image display is further responsive to the source of fuel for the display of the amount of fuel remaining in the fuel source.

24. (previously presented) An ultrasonic diagnostic imaging system comprising:

an ultrasonic transducer array probe operable to receive ultrasound signals;

an ultrasound signal processor coupled to receive signals from the array probe;

an ultrasound image processor coupled to receive signals from the signal processor;

an image display coupled to the image processor which acts to display images produced by the image processor; and

a fuel cell and fuel supply unit, coupled to provide energy to one or more of the array probe, the signal processor, the image processor, and the image display,

wherein the fuel cell and fuel supply unit are removable from the diagnostic imaging system for replacement by another fuel cell and fuel supply unit by a user of the ultrasonic diagnostic imaging system.